

Does IDA Engage in Defensive Lending?

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Abstract

Multilateral development banks are frequently accused of “defensive lending,” the practice of extending new loans purely in order to ensure that existing loans are repaid. This paper empirically examines this hypothesis using data on lending by and repayments to the International Development Association (IDA), which is the largest provider of concessional development loans to low-income countries. The authors argue that key institutional features of IDA both (i) potentially

create incentives for defensive lending, and (ii) enable particularly sharp tests of the defensive lending hypothesis. The authors find that there is a surprisingly robust partial correlation between disbursements on new IDA loans and repayments on existing loans. However, a closer look at the evidence suggests that defensive lending is unlikely to be a major explanation for this partial correlation.

This paper—a joint product of the Development Research Group and the Economic Policy and Debt Department in the Poverty Reduction and Economic Management Network—is part of a larger effort in the latter department to study external debt issues in low-income countries. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at akraay@worldbank.org and cgeginat@worldbank.org.

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Introduction

Defensive lending refers to the practice of rolling over the debts of non-creditworthy borrowers in order to prevent non-performing loans from showing up on creditors' balance sheets. Commercial lenders may engage in (and their regulators may condone) such behavior if the explicit recognition of non-performing loans is financially (and politically) costly. In recent years a number of critics have argued that multilateral development banks (MDBs) are also engaged in defensive lending. In short, these critics argue that an important motivation for fresh loans to developing countries is simply to ensure that existing loans are repaid.¹ Since countries with heavy debt service obligations may not necessarily be ones where aid resources will be effectively used, such behavior would not be consistent with the stated goals of MDBs to provide development finance to support growth and poverty alleviation.

This paper examines the empirical evidence for defensive lending by the International Development Association (IDA), the soft-loan window of the World Bank. Established in 1960, IDA provides highly-concessional loans to low-income countries, primarily financed by contributions from rich-country donors. The case of IDA is interesting for several reasons. First, it is by far the largest single provider of concessional loans to developing countries, accounting for roughly half of all official lending to developing countries. Second, because it relies heavily on regular donor contributions to finance the bulk of new lending, it has strong political incentives to demonstrate good performance on its existing portfolio.

Third, and perhaps most importantly, over the past 20 years the distribution of IDA lending across countries has been determined by an explicit formula tying per capita IDA allocations to per capita income, a measure of policy performance, and country size. This is important because this IDA allocation formula provides a baseline against which to assess defensive lending. In the case of commercial lending, accepted standards of creditworthiness provide a natural benchmark against which to assess whether a loan is provided for defensive or valid reasons.² In contrast, much of foreign aid has been

¹ See for example Bulow and Rogoff (2005) and Lerrick (2005).

² See for example Peek and Rosengren (2005) who document that Japanese banks provided loans to financially-troubled firms in order to prevent the realization of losses on the banks' own

allocated according to a rather opaque combination of factors reflecting both the strategic and other interests of donors as well as the needs and capacity of recipient countries.³ The lack of clear and measurable criteria for the allocation of aid means that it is difficult to distinguish development lending for defensive reasons from lending in support of other unstated objectives⁴.

In the case of IDA, however, the IDA allocation formula provides a remarkably clear benchmark. We begin by documenting empirically that around half of the variation in IDA commitments is explained by the three variables that explicitly enter into the IDA allocation formula: per capita GDP, a World Bank-constructed measure of policy performance, and population. We then ask whether departures from the allocation formula are explained by measures of the debt burden of the borrowing country. In particular, if defensive lending were operative, we should expect to see more lending to countries that have debt service obligations that are large relative to their repayment capacity. We document that, after controlling for variables suggested by the IDA allocation formula, there is a surprisingly strong partial correlation between new disbursements of IDA resources and repayments on outstanding IDA loans.

Nevertheless, we provide evidence that this partial correlation should not be interpreted as defensive lending, for at least four reasons: (1) the observed correlation between disbursements and repayments is very strongly affected by a handful of countries entering into non-accrual status with IDA, with both repayments and disbursements on new loans falling sharply in tandem around these episodes -- after removing these episodes from our sample the partial correlation between IDA disbursements and debt service obligations largely vanishes; (2) net transfers to even the most heavily-indebted countries are strongly positive, while the hypothesis of defensive lending suggests that they should be near zero; (3) we find no evidence of greater disbursements in "large" debtors to IDA, whose repayment difficulties would

balance sheets. This behaviour was more likely in banks that were close to their minimum capital adequacy requirements.

³ Alesina and Dollar (2000), Rajan and Subramanian (2005).

⁴ Such an unstated objective could, for example, be that multilateral creditors see their role as stabilizers of the global economic system and hence may deliberately forgo profits because they hope to see a country through a liquidity crisis that may have implications for the stability of the overall financial system (Jeanne and Zettelmeyer, 2001). Or it could simply be that an important factor in driving foreign aid is the strategic and geopolitical ties between aid donors and aid recipients (Alesina and Dollar (2000), Rajan and Subramanian (2005)).

presumably be more politically costly for IDA; and (4) there is no evidence of greater disbursements in countries with weak policy performance that are more likely to experience difficulties servicing a given debt burden. Finally, we also document that there is little evidence that defensive lending may be done covertly by manipulation of variables that enter the IDA allocation formula itself.

We are not the first to study defensive lending behavior by multilateral lenders. A number of prior papers have documented positive correlations between lending (either gross or net of repayments) and measures of indebtedness of the borrowing country (Birdsall, Claessens and Diwan (2003), Lerrick (2005), and Ratha (2005)). Rather more mixed evidence is provided by Marchesi and Missale (2007) who document that net lending by multilaterals is negatively correlated with indebtedness to multilateral creditors in a sample of low-income countries, but less so for countries in the Heavily Indebted Poor Countries (HIPC) debt relief program. As we discuss in more detail throughout the paper, we find that all of these studies suffer from one or both of two basic shortcomings: (1) a failure to adequately control for common factors driving new lending and indebtedness that have nothing to do with defensive lending, and/or (2) a failure to eliminate purely mechanical sources of co-movement between new lending and indebtedness. Both of these shortcomings lead to upward biases in estimates of defensive lending, as we discuss in more detail below. Finally, a much more subtle test of defensive lending by a multilateral lender is offered by Celasun and Ramcharan (2006). Rather than looking at correlations between repayments and new lending, these authors document evidence that lending by the International Monetary Fund is accompanied with less rigorous policy conditionality in countries where its exposure is high.

In Section 2 we describe in more detail the IDA allocation formula and show that it has strong predictive power for IDA lending. In Section 3 we study the residual variation in this relationship, and document that it is strongly correlated with the indebtedness of the borrowing country. However, we provide several arguments why this partial correlation should not be interpreted as evidence of defensive lending. Section 4 concludes.

2. Incentives for and Constraints on Defensive Lending by IDA

To see why IDA *might* face incentives to engage in defensive lending, some further institutional details are required. IDA is set up as a rotating fund, in which new loans are financed by a combination of repayments of old loans (referred to as "reflows") and donor contributions. Donor contributions primarily take the form of regular triennial "replenishments" of IDA resources. The amounts of these contributions are negotiated and agreed upon by the donors following a review of the performance of past IDA lending. Because IDA loans are highly concessional with very long maturities (standard IDA terms involve a grace period of 10 years followed by a 30 year repayment period), donor contributions have accounted for the bulk of IDA's financing since its creation in 1960. For example, between 2000 and 2006, donor contributions to IDA totalled \$36.5 billion, while repayments of IDA loans totalled just \$8.1 billion.⁵

The administration and design of IDA lending is entrusted to the staff and management of the World Bank, and this work is financed by service charges that are proportional to the value of IDA credits extended. Between 2001 and 2006, these service charges averaged \$795 million and were roughly equal to the annual administrative expenses of IDA, which averaged \$778 million over the same period.⁶ These service charges account for a very significant share of the operating budget of the combined operations of IDA and the non-concessional arm of the World Bank, the International Bank for Reconstruction and Development (IBRD). In particular, on average over the same period, service charges on IDA lending accounted for 46 percent of the combined administrative expenses of IDA and IBRD. Thus, the World Bank staff who administer IDA resources have strong incentives to ensure the continuation of regular donor contributions to IDA, as well as regular reflows which can be re-lent.

The institutional dependence of the World Bank on IDA lending *potentially* creates incentives for defensive lending. First, the willingness of donors to provide fresh resources during each IDA replenishment is likely to depend on their perception that

⁵ IDA Annual Report, Special Purpose Financial Statements, Statement of Cash Flows (various issues). Donor contributions refer to direct contributions, as well as indirect contributions through the HIPC Trust Fund and from IBRD.

⁶ IDA Annual Report, Special Purpose Financial Statements, Income Statement (various issues). Service charges refers to both service and commitment charges.

these resources are being used well. Ideally, this perception would be based on careful evaluations of the development impact of all IDA-financed projects. But for many of the long-gestation projects that IDA resources finance, detecting quantifiable benefits even over the long term is difficult even when these projects are well-executed. As a result, perceptions of the effective use of resources are likely to be heavily influenced by more readily-observable variables, such as the performance of the IDA portfolio. A significant fraction of non-performing loans in IDA's portfolio could be interpreted as signaling the ineffective use of aid resources, and might lead donors to scale back their contributions to IDA.

Second, and closely related to the first, it is in the institutional interest of the World Bank to develop and maintain a steady stream of reflows into IDA. As these reflows grow in importance over time they provide a predictable pool of resources that can be used to finance new IDA loans. In contrast, triennial donor contributions to the IDA replenishments are less certain and are more subject to fluctuations in the political agendas of the donors.⁷ To the extent that defensive lending can ensure repayments, and so demonstrate the viability of the IDA model of a rotating lending fund, there might be incentives to engage in such defensive lending.

Third and finally, rules governing IDA lending imply that the failure of a debtor country to make scheduled repayments triggers a prompt halt in new lending and disbursements on existing loans to that country. Such interruptions in lending are highly disruptive to ongoing projects, and moreover contribute to difficult relationships between the World Bank and borrowing countries. A desire to avoid such disruptions might also create incentives for defensive lending. Of course this last consideration is not unique to IDA, but nevertheless may contribute to incentives for defensive lending in the case of IDA.

Set against these potential incentives for defensive lending is another key feature of IDA: its explicit formula for the allocation of resources across countries. As noted in

⁷ See for example "Hungry Like the Wolf", *Economist* (December 7, 2006) which describes negotiations over IDA replenishments as a "begathon" and a "fraught business". The recent controversy over World Bank President Paul Wolfowitz and the suggestions from various donors that they would withhold contributions to IDA in response further illustrate the riskiness (from the standpoint of the World Bank) of relying solely on replenishments as a source of financing for IDA.

the introduction we will use this formula as a benchmark against which to assess the importance of defensive lending: in particular we will examine whether deviations from this formula are correlated with measures of the indebtedness of borrowing countries. We describe this formula in some detail as it provides justification for the set of control variables used in our subsequent empirical work.⁸ This formula, known as the "Performance Based Allocation" formula (PBA), is used to determine an initial allocation of available IDA resources across IDA-eligible countries, known as the "normative allocation". Eligibility for IDA is based on per capita GNP, where the current threshold for eligibility is \$1025 US at market exchange rates. In addition, a number of small countries with per capita incomes higher than this threshold are included based on the "Small Island Economy" exception. The PBA then delivers the "normative allocation" of IDA resources across eligible countries based on the following formula:

$$(1) \quad \text{Per Capita Allocation}_{ct} = A_t \cdot (\text{Policy}_{ct})^{\alpha} \cdot (\text{Per Capita Income}_{ct})^{-\phi}$$

where Per Capita Allocation refers to the PBA of new IDA resources to country c in year t ; Policy is an index of borrower policy performance; Per Capita Income is per capita GDP measured at market exchange rates; α and ϕ are positive constants measuring the elasticity of IDA allocations to policy and the level of development of the country⁹; and A_t is a constant (across countries) that is chosen to ensure that total allocations across all countries exhaust IDA resources available for lending in the period.

Several remarks are in order about this formula.

- The PBA given by this formula is not the same as disbursements or even commitments of new loans to a country during the three-year IDA period, as there are a variety of steps between these allocations and actual new lending to countries. First, the normative allocations produced by the PBA are discussed and adjusted by the management of IDA to reflect a variety of considerations. This results in a set of "agreed allocations" by country. These are then aggregated by regions and the total agreed allocations are made available to

⁸ For a much more detailed description of the PBA and empirical evidence on the extent to which it in practice guides IDA lending, see Moorthy and Orzan (2007).

⁹ These weights have varied over time, and in recent years have been $\alpha=2$ and $\phi=0.125$.

each regional vice-presidency in the World Bank. Each vice presidency then develops a lending program based on these resources, with some discretion on how they are allocated across countries within the region. Given normal lags in project and loan preparation, as well as a typical disbursement period of eight to ten years for IDA credits, there are considerable lags between the initial normative allocation of resources given by this formula and actual disbursements of funds to borrowers. Even in terms of commitments, regions have some flexibility in shifting IDA commitments over time in order to respond to shocks, or to accommodate large and indivisible lending projects.

- Even for initial normative IDA allocations, this formula does not hold exactly for several additional reasons. The main ones are that (a) there are lower and upper limits on allocations, with each IDA-eligible country receiving a minimum total allocation of 3 million SDRs, and a maximum per capita allocation of \$US 20, and (b) special adjustments to the allocations for "blend" countries that are eligible for borrowing from both IDA as well as non-concessional IBRD lending.
- There have been non-trivial changes in the precise measure of policy used in the PBA system. The CPIA ratings, prepared by World Bank country economists, were initiated for the specific reason of guiding concessional lending by IDA (and also for a while non-concessional IBRD lending as well). The CPIA methodology itself has evolved over time into its current format of ratings assigned on a scale of one to six for 16 different criteria that are then averaged to obtain the overall CPIA index.¹⁰ The policy measure actually used in the PBA formula has also evolved, to (a) include measures of procurement and portfolio performance on individual IDA loans, and (b) place greater weight on the dimensions of the CPIA that measure "governance".
- The formula itself has undergone various changes at the request of IDA donors. For example, during the 1990s some discontinuities were introduced to increase the exponent on policy in countries with good policy performance, thus increasing the sensitivity of IDA allocations to good policy performance.

¹⁰ Details on the current form of the CPIA can be found at <http://siteresources.worldbank.org/IDA/Resources/CPIA2005Questionnaire.pdf>

Since Equation (2) is linear in logarithms, our baseline empirical specification has the log of IDA disbursements per capita as the dependent variable, and the set of control variables includes the logarithm of per capita GDP in dollars at market exchange rates, the logarithm of policy, and a full set of year dummies. We have obtained the precise measure of policy actually used in IDA allocations since 1990, whose definition has varied over time as noted above. Prior to 1990 we simply use the CPIA itself, which was in fact the measure of policy performance used by IDA during this time. The year dummies capture the growth over time in the overall size of IDA, i.e. increases in A_t in Equation (2). We include the logarithm of population to capture the strong relationship between country size and IDA allocations per capita that is introduced by the minimum and maximum per capita IDA allocations described above. Finally, the error term in these benchmark regressions captures empirical deviations from the PBA formula. In the next section we will examine the extent to which these deviations are driven by defensive lending considerations.

Table 1 reports the results from estimating these benchmark IDA allocation regressions. In the first column, the dependent variable is the logarithm of disbursements on IDA loans per capita. We pool all country-year observations over the 20-year period 1984-2003, and as noted above we include year dummies to capture the overall size of the IDA envelope in each year. All three variables are highly significant predictors of IDA disbursements and enter with the expected signs, with higher per capita incomes and higher population associated with smaller per capita IDA allocations, and better policy performance associated with larger per capita IDA allocations. The overall fit of the regression, as summarized by the R-squared, is a respectable 0.33, indicating that the variables entering the IDA allocation formula do explain a significant share of the variation in actual IDA disbursements.

In the second column we repeat the results, but replacing the dependent variable with log IDA commitments per capita. This choice of dependent variable is more appropriate from the standpoint of assessing the empirical performance of the PBA formula, as the PBA governs commitments of new loans, while disbursements in a given year reflect commitments, and hence PBA ratings, over the past several years. Not surprisingly, in this case we find a substantially higher R-squared of 0.5, and a pattern of significance of coefficients that is quite similar to the previous column. Nevertheless, for

most of the paper we will use disbursements per capita as the key dependent variable, since from the standpoint of defensive lending, only actual disbursements in a given year can be used to finance debt service obligations falling due during that period, and so only disbursements can be used to implement a strategy of defensive lending.¹¹

In the next two columns we divide the time period in half and report results separately for the period 1984-1993 and 1994-2003. The main distinction between these two periods is that the magnitude and significance of the effect of policy performance increases sharply in the latter period, with the coefficient nearly doubling in size. This captures the greater policy selectivity in IDA's lending in recent years compared with earlier ones. Interestingly, the estimated magnitude of the elasticities of per capita IDA allocations to policy and per capita income are quite close to those in the stated formula. The estimated elasticity with respect to per capita income is -0.23 and we cannot reject the null hypothesis that it is equal to the value currently used in the PBA formula, which is -0.125. Similarly, the estimated elasticity with respect to policy is 1.47 and we do not reject the null hypothesis that it is equal to its current PBA value of 2 (at the 5 percent significance level).

In the last column of Table 1 we report results including country dummies, so as to ascertain the extent to which the IDA allocation formula explains the within-country over-time variation in disbursements on IDA loans. In these regressions we drop the per capita income and population variables as they exhibit virtually no variation within countries over time relative to their cross-country variation. We continue to find a highly significant relationship between the measure of policy performance and IDA disbursements, and the magnitude of the elasticity at 1.26 is very similar to what we found in the pooled between and cross-country variation in the data. This finding is quite striking as it indicates that the PBA formula predicts very well not only the between-country variation, but also the within-country over-time variation in IDA lending.

¹¹ We do however note that our results below are quite similar if we look at commitments rather than disbursements. We also obtain broadly similar results with a Tobit specification to deal with the significant number of zeros in the commitments variable (about 1/3 of the sample, as opposed to less than 10 percent of the sample in the case of the disbursements variable).

3. Testing for Defensive Lending by IDA

We begin our tests for defensive lending by augmenting the basic regressions in Table 1 with measures of IDA's exposure to each country. If defensive lending considerations in part motivate IDA lending, we should expect to find a positive correlation between measures of indebtedness of the borrowing country and disbursements of IDA credits. In particular, we would expect to find that, other things equal, countries with heavier debt burdens or larger debt service obligations to IDA would receive greater disbursements on new loans.

We consider two alternative measures of borrowers' indebtedness: total debt service paid to IDA in a given year, and the year-end total stock of IDA debt outstanding, both expressed as a share of the GDP of the borrowing country.¹² We lag the stock of debt variable by one year to remove a purely mechanical source of correlation between the two: new disbursements of IDA loans in a given year imply an increase in the stock of debt outstanding at the end of the same year.¹³ Also, we enter both debt variables in logarithms, for two practical reasons. First, this allows us to interpret the estimated slope coefficients as elasticities, since the dependent variable is also in logarithms. Second, due to a few countries with very high debt stocks and debt service obligations, the unconditional relationship between IDA lending and these variables is highly non-linear. In logarithms however the relationship is much closer to linear, and the estimated slope coefficients are much less sensitive to extreme observations in the sample.

In the first two columns of Table 2 we in turn add the total stock of IDA debt outstanding, and the current flow of debt service paid to IDA, as explanatory variables in the simple pooled regressions. Both enter very highly significantly and positively,

¹² One might also examine whether IDA engages in defensive lending vis-a-vis other creditors. In this case, one could ask whether measures of total debt service or indebtedness vis-a-vis all creditors, and not just IDA, is significantly correlated with IDA repayments. In unreported results we have investigated this, and we find that typically, measures of overall indebtedness are much less significantly correlated with IDA lending.

¹³ Somewhat surprisingly this potential source of mechanical correlation between stock of debt measures and disbursements is not recognized by all authors in this literature. For example, Birdsall, Claessens and Diwan (2003) regress net transfers on loans from official creditors on the contemporaneous present value of future debt service obligations. Since the latter is an end-of-period measure and the former measures the flow of new lending during the period, there is a mechanical source of positive correlation between the two which biases up estimates of defensive lending.

indicating that higher indebtedness to IDA as captured by either of these two measures, is associated with significantly higher disbursements of IDA loans. The estimated magnitudes are also non-trivial. In the case of the stock of debt, a 10-percent increase in the IDA debt-to-GDP ratio is associated with a 3.9 percent increase in per capita IDA disbursements, and a 10 percent increase in the IDA debt service-to-GDP ratio is associated with a 3.1 percent increase in per capita disbursements. In the next two columns of Table 2 we examine the within-country relationships by adding country fixed effects and as before dropping per capita income and country size. This greatly reduces the magnitude and significance of the estimated coefficients on the indebtedness variables. The coefficient on the stock of debt measure falls by two-thirds and is now significant only at the 10 percent level. The coefficient on the debt service variable falls by one-third but remains highly significant at the one percent level.

Since as we discuss below this is a key benchmark finding, we report in Figure 1 the partial scatter corresponding to this relationship, and we verify that it is not driven by a few visually-obvious extreme observations. The remaining columns of Table 2 split the sample in half at 1994 and report results for the debt service variable. We find that both with and without country fixed effects, the estimated coefficient on debt service is significantly positive in both sub-periods, although substantially larger in the first period than in the second period.

It is useful to pause for a moment to emphasize why the results in Table 2 are quite remarkable. Observing a simple correlation between disbursements on IDA loans and either of our measures of country indebtedness to IDA would not be very surprising. If some countries have persistently good policy performance, they would attract lots of IDA lending and so end up with large stocks of debt owed to IDA as well as large debt service obligations. At the same time, persistent good policy performance would make them candidates for continued high volumes of lending. Thus it would be perfectly natural to observe a positive unconditional correlation between either of our two measures of indebtedness and disbursements on IDA loans, as this correlation would be driven by a third factor, persistent cross-country differences in policy performance. And similarly, we might expect countries that are small, or have low per capita incomes, to be persistent recipients of IDA lending and so display a positive unconditional correlation between indebtedness and disbursements on new IDA loans. For this reason, we do not

think that the unconditional correlation between lending and repayments documented by Lerrick (2005) is at all compelling evidence of defensive lending. We note also that Ratha (2005) does find some evidence of a correlation between IDA commitments as a share of GDP and the total debt service obligations of borrowing countries. However, these regressions do not control for policy performance, per capita income, and population. The persistent-over-time component of these variables will drive both new lending and repayments on existing loans, and so we cannot interpret this correlation as evidence of defensive lending.

This is precisely why we have emphasized the unique role of the PBA formula in the IDA allocation process, as it provides us with an explicit institutional justification for a particular set of control variables that drive lending decisions and so allows us to control for these omitted variables in the unconditional relationship. And despite having done so, and despite the strong explanatory power of the PBA variables, we find a strongly significant relationship between indebtedness and new disbursements conditional upon these variables. Moreover, we have seen that for the debt service variable at least, this significant relationship survives the inclusion of country fixed effects, which can be interpreted as controlling for any unobserved (by us) but time-invariant dimensions of policy performance or other characteristics that make countries attractive for IDA lending.¹⁴

The foregoing discussion also suggests a reason to focus more closely on the partial correlation between disbursements and debt service paid rather than the stock of debt outstanding. The reason has to do with the fairly long disbursement periods as well as the long grace periods associated with IDA credits. A typical IDA credit, once agreed upon, is disbursed over a multi-year period, typically between five and eight years, and standard IDA credits also have a grace period of 10 years during which no repayments are made. The multiple-year disbursement schedule implies that disbursements we observe at year t to a given borrowing country reflect lending decisions made, and the information available regarding the borrower, over the past several years. And similarly,

¹⁴ Of course there is also a less-than-benign interpretation of these unobserved time-invariant country characteristics. It could be that past lending and current disbursements are driven by strategic and/or geopolitical characteristics of borrowing countries. We have investigated this possibility by controlling for the politically-motivated component of overall aid flows as constructed by Rajan and Subramanian (2005). We do not however find that this particular variable has much explanatory power for IDA disbursements.

the stock of debt at the end of year $t-1$ reflects lending decisions and the information on which they are based, over the past several years and more.¹⁵ To the extent that lending decisions are made based on policy or other factors not explicitly captured by the PBA, this overlap in information sets implies that we might very well observe positive partial correlations between the stock of debt measure and new IDA disbursements. In contrast, the 10-year grace period in IDA credits means that any debt service that we observe in year t reflects lending decisions, and the information upon which they were based, from 10 or more years prior to t . This makes it much less likely to observe a correlation between debt service paid to IDA and new disbursements from IDA driven by common (but unobserved by us) policy factors. In light of this, in the discussion that follows we focus on the debt service variable, which in any case is much more significantly correlated with new disbursements.¹⁶

Thus far we have seen that there is a surprisingly strong and significant partial correlation between measures of indebtedness to IDA and disbursements on new IDA loans. We have also argued that it is difficult to justify this relationship by arguing that there are unobserved cross-country and over-time fluctuations in policy performance or factors that make countries good candidates for IDA lending but are not explicitly captured in the PBA formula. At first glance this evidence might suggest that defensive lending considerations are operative for IDA: controlling for the ostensible determinants of IDA allocations, countries that are more indebted to IDA and/or have greater debt service obligations to IDA get greater disbursements of IDA loans. Nevertheless, we think that there are four reasons that this defensive lending interpretation of these results is probably not appropriate.

¹⁵ This potential source of mechanical correlation between disbursements and debt stocks coming through long disbursement periods potentially biases up the correlations between net lending and debt stocks reported in Birdsall, Claessens and Diwan (2003) and Marchesi and Missale (2007).

¹⁶ We note in passing that other papers such as Birdsall, Claessens and Diwan (2003) have focused on stock-of-debt rather than flow-of-debt-service measures of indebtedness and so are subject to this source of upward bias. In contrast Ratha (2005) in our view appropriately focuses on flow measures of debt service. We also note that in our specifications, the left-hand and right-hand side variables of interest are normalized by different factors: we have IDA disbursements per capita as the dependent variable and debt service as a share of GDP as the key right-hand side variable of interest. In contrast, all three papers mentioned above normalize both sides by GDP. To the extent that there is measurement error in the denominator, this raises the risk of a mechanical source of positive comovement between disbursements as a share of GDP and measures of indebtedness as a share of GDP, again resulting in upward biases in estimates of defensive lending.

First, we observe that the significance of the relationship between debt service paid and disbursements is largely driven by a handful of countries entering and exiting non-accrual status with IDA. In our sample there are a few cases of countries that go into non-accrual status with IDA. This occurs more or less automatically if scheduled debt service payments to IDA are late by more than sixty days, and this in turn more or less automatically triggers a halt to disbursements on IDA lending. Conversely, exits from non-accrual status generally involve a significant payment of debt service including past arrears, combined with a resumption of disbursements. Episodes such as these will thus naturally feature a positive correlation between disbursements and repayments. Figure 2 illustrates one such episode in our sample. Around the time of the 1994 genocide, Rwanda briefly entered, and then exited from non-accrual status with IDA (the period indicated with a gray rectangle). Around this time per capita disbursements and debt service as a share of GDP both fell sharply and then recovered quickly afterwards, generating a strong positive correlation between the two measures.¹⁷

We note first that these episodes are rare. In the full set of 1687 country-year observations on IDA-eligible countries between 1984 and 2003 we find that 154 observations, or slightly less than 10 percent of the sample, correspond to countries in non-accrual status, with most of these observations are concentrated in a handful of countries. For our purposes the within-country over-time fluctuations in non-accrual status are relevant. In our regression sample we have just 14 cases of countries entering non-accrual status and 14 cases of countries exiting, yet it turns out that these cases are highly influential in driving the partial correlation between debt service paid and new disbursements.¹⁸ To see this we construct a dummy variable taking on the value of one in country j in year t if a country entered into or exited from non-accrual status in years $t-1$, t or $t+1$. We then interact this dummy variable with total debt service and enter it into our baseline regressions, thus allowing the slope of the relationship between debt service and disbursements to differ in these episodes from the rest of the

¹⁷ Note that disbursements on an annual basis do not fall to zero as Rwanda entered non-accrual status near the end of the 2003 and exited again in early 2004, so that it did not spend a full calendar year in non-accrual status.

¹⁸ This is smaller than the total number of entries into and exits from nonaccrual status because our regression sample is restricted to observations where debt service and disbursements are both positive (since both variables are entered as logarithms). We thus do not have in our regression sample episodes of nonaccrual status that lead to complete halts in disbursements.

sample. The results are reported in the first two columns of Table 3. In the first column we repeat our baseline regression of disbursements on policy performance and total debt service, including a full set of country and year dummies, but restricting ourselves to the slightly smaller sample for which we have data on changes in non-accrual status.¹⁹ As before we find a significant partial correlation between debt service and disbursements. In the second column however we add our interaction with changes in non-accrual status. We find that this interactive effect is highly significant, while the direct effect of debt service is no longer significant. This indicates that the significant correlation between debt service and disbursements that we have seen thus far is driven primarily by the handful of countries entering in or exiting from non-accrual status.

An obvious objection to this is finding that exits from non-accrual status may precisely constitute defensive lending. According to this objection, countries exiting from non-accrual status are able to make the required payments of debt service (and possibly also accumulated arrears) precisely because they are receiving new disbursements. To address this objection we further distinguish between entries and exits, interacting the debt service variable with separate dummy variables indicating countries entering into or exiting from nonaccrual status. We report this regression in the third column of Table 3, where we find that the partial correlation between debt service and disbursements is significantly positive only around episodes of countries entering into non-accrual status. In contrast, the correlation is insignificant in countries exiting from non-accrual status as well as in the remainder of the sample. We conclude from this that most of the observed partial correlation between debt service and disbursements is driven by abrupt declines in lending and repayments in a few countries going into non-accrual status, and thus should not be interpreted as evidence of defensive lending.

Second, we observe that the estimated magnitude of the response of disbursements to debt service is implausibly large under the hypothesis of defensive lending. Defensive lending implies that lending to non-creditworthy borrowers should be tailored to just cover the debt service obligations of the borrower. There is no reason however why the lender should lend significantly more than the amount of debt service owed to it by a non-creditworthy borrower. However, a striking feature of IDA in this

¹⁹ Our dummy variable for non-accrual status spans the period 1984-2003. We thus have data on *changes* in non-accrual status only for 1985-2003.

respect is that net transfers, i.e. the difference between disbursements on new loans and repayments of old loans, is strongly positive for virtually all active IDA borrowers. This can be seen most clearly in Figure 3, which reports net transfers on IDA loans (i.e. disbursements less debt service paid) as a share of GDP, averaging by decile of IDA debt service as a share of GDP. If defensive lending were important, we would expect to see net transfers be close to zero in countries with the heaviest debt service obligations (i.e. towards the right-hand-side of Figure 3). However, we see that net transfers are positive on average for all deciles of the distribution of IDA debt service. Moreover, net transfers are (weakly) increasing with IDA debt service ratios, whereas the defensive lending hypothesis would suggest the relationship should be negative.

Another way to see this is to notice that our estimated response of disbursements to debt service implies that the response of new disbursements greatly exceed debt service due. Recall that both variables are entered in logarithms so that the estimated slope coefficient is an elasticity. Converting this into absolute changes implies that a one-dollar increase in debt service is associated with an increase in disbursements of $(\beta \text{ Disbursements/Debt Service})$ dollars, where β is the estimated slope coefficient which ranges from about 0.2 to 0.3. Thus in any country where the ratio of disbursements to debt service is greater than between $3.33=1/0.3$ and $5=1/0.2$, our estimates suggest that new disbursements are much greater than what would be required for purely defensive lending purposes. In our sample, the 25th percentile of the ratio of disbursements to debt service is 4.5, suggesting that in roughly three-quarters of all countries the absolute magnitude of the response of new disbursements to debt service due is larger than would be warranted if defensive lending were operative.

Third, we do not find evidence that the correlation between debt service and disbursements is stronger in countries that account for a large share of IDA's portfolio. The intuition for this point is simple: if defensive lending were operative, we would expect IDA to have a stronger incentive to engage in defensive lending in countries that loom large in its own portfolio, since presumably the political and financial costs of explicitly recognizing non-performance would be greater in such large borrowing countries. To capture this possibility, we construct a variable measuring the rank of

each country in IDA's portfolio of loans outstanding in each year.²⁰ We then interact this with the debt service variable and introduce it in the benchmark regressions without and with country fixed effects. We report these results in the fourth and fifth columns of Table 3. Surprisingly, we find that the interaction term enters negatively and significantly, suggesting that the partial correlation between debt service and disbursements is significantly higher among smaller borrowers. We think this pattern is difficult to reconcile with the hypothesis of defensive lending.²¹

Fourth and finally, we do not find that the correlation between debt service and disbursements is greater in countries with poor policy performance. The argument here too is straightforward. Thus far we have been assuming that high debt service to GDP ratios indicate borrowers that are likely to have difficulties servicing their debts, and thus are likely to be candidates for defensive lending. Recent research however has documented that in addition to high debt burden indicators, the quality of a country's policy and institutional performance as measured by the CPIA has strong predictive power for episodes of debt servicing difficulties (Kraay and Nehru (2006)). In the present context this suggests a further interactive effect: if defensive lending were important, we should expect to find that the partial correlation between debt service and disbursements is higher in countries with poor policy performance. To investigate this we create a dummy variable taking on the value one if a country's CPIA score is greater than 3.5, which is roughly the median CPIA score in the entire regression sample. We then interact this with debt service and include the interaction in our baseline regressions with and without country fixed effects (columns 6 and 7 of Table 3). Although this interaction enters negative as would be expected under the hypothesis of defensive lending, it is insignificantly different from zero.²²

²⁰ We use this rank variable as a measure of size because the distribution of shares in the IDA portfolio is highly skewed with a few large borrowers such as China, India, Indonesia, Pakistan and Nigeria accounting for a large share of IDA credits outstanding.

²¹ In contrast, using the same rank measure of debtor size, Depetris and Kraay (2007) do find some suggestive evidence that debt relief (from all sources) is more likely to go to low-income countries that are larger borrowers (vis-a-vis all multilateral lenders).

²² The work of Birdsall, Claessens, and Diwan (2003) suggests another interpretation of this interaction. They document that net transfers from official creditors are negatively correlated with the CPIA measure policy performance in countries that are highly-indebted to multilateral creditors. This would correspond to a negative interactive effect that we find here. Their interpretation however focuses on "policy selectivity", arguing that aid donors are less selective in the allocation of development loans to countries with high levels of debt. However we do not find

The evidence thus far suggests that while there is a significantly positive partial correlation between disbursements on IDA lending and debt service paid to IDA, we do not think that this correlation should be interpreted as evidence of defensive lending. There is however a further possibility for defensive lending: it is possible that defensive lending is not done overtly, by increasing disbursements beyond what is prescribed by the PBA formula to countries with incipient debt servicing difficulties. Rather it could be done more covertly through manipulation of the variables driving PBA allocations.²³ In particular, it is possible that defensive lending is accomplished by giving better-than-warranted CPIA scores to countries with incipient debt servicing difficulties. This would result in higher-than-warranted commitments and eventual disbursements to the country, but yet would not evidence itself as a significant partial correlation between disbursements and debt service after controlling for policy performance.

A simple way to test for this possibility is to examine whether measures of country indebtedness have predictive power for IDA country performance ratings after controlling for other measures of policy performance. We do this in Table 4, where we use data from the Worldwide Governance Indicators project (Kaufmann, Kraay, and Mastruzzi (2006)) as alternative measures of policy performance. We consider two of the six measures from this dataset, Rule of Law, and Government Effectiveness, as ones that correspond most closely to what the IDA country performance ratings are measuring.²⁴ Although these indicators have the advantage of covering all IDA borrowers, they have a more limited time dimension and are available only 1996, 1998, 2000, and annually since 2002. We then report results of pooled and fixed-effects regressions in this shorter panel, including in turn the stock of IDA debt and the flow of IDA debt service as proxies for incipient debt servicing difficulties that might be met with

this interaction to be statistically significant, possibly because we consider a much larger sample of IDA recipients and not simply the set of African countries that they study.

²³ This approach is closely related to that of Celasun and Ramcharan (2006) who study whether the IMF dilutes its lending standards by imposing weaker program conditions or by waiving conditions for countries whose obligations outstanding to the IMF represent a bigger share of the institution's overall balance sheet. They find this type of dilution is present in loans financed by the IMF's own resources, where incentives for defensive lending are stronger.

²⁴ The WGI indicators are composite indicators averaging information on perceptions of governance and institutional quality from a large number of distinct respondents. One of the ingredients of the WGI is the CPIA itself, which contributes to the strong correlation between the IDA policy performance measure and the WGI indicators. This however does not affect the interpretation of the coefficients on the indebtedness variables.

defensive lending-type behavior. The evidence here is uniformly negative: we find no cases where the debt burden indicators have any significant explanatory power for IDA country performance ratings, suggesting that defensive lending is not operating through this indirect channel.

4. Conclusions

Multilateral development lenders are frequently accused of defensive lending in order to ensure repayment of loans outstanding. In this paper we have studied the extent to which lending by IDA, by far the largest source of concessional development loans, is motivated by defensive lending. We have argued that the strong institutional dependence of the World Bank, which administers IDA on behalf of donors, creates potential incentives for defensive lending. Moreover, the unique institutional features of IDA, and particularly its formulaic system of policy-based loan allocations across countries, provides a particularly clean basis for testing this hypothesis. We have seen that, conditional on the variables that notionally drive IDA allocations, per capita income, population, and policy performance, there remains a strong partial correlation between measures of indebtedness to IDA and new disbursements on IDA loans. This relationship, which is suggestive of defensive lending, holds even when we control for all unobserved, time-invariant country characteristics through the use of fixed effects.

Nevertheless, we have argued that this partial correlation should not be interpreted as evidence for defensive lending, for at least four reasons: (1) the observed correlation between disbursements and repayments is very strongly affected by a handful of countries entering into non-accrual status with IDA, with both repayments and disbursements on new loans falling sharply in tandem around these episodes; (2) net transfers to even the most heavily-indebted countries are strongly positive, while the hypothesis of defensive lending suggests that they should be near zero; (3) we find no evidence of greater disbursements in "large" debtors to IDA, whose repayment difficulties would presumably be more politically costly for IDA; and (4) there is no evidence of greater disbursements in countries with weak policy performance that are more likely to experience difficulties servicing a given debt burden.

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Figure 1: Partial Scatter of Fixed-Effects Relationship Between Debt Service and Disbursements

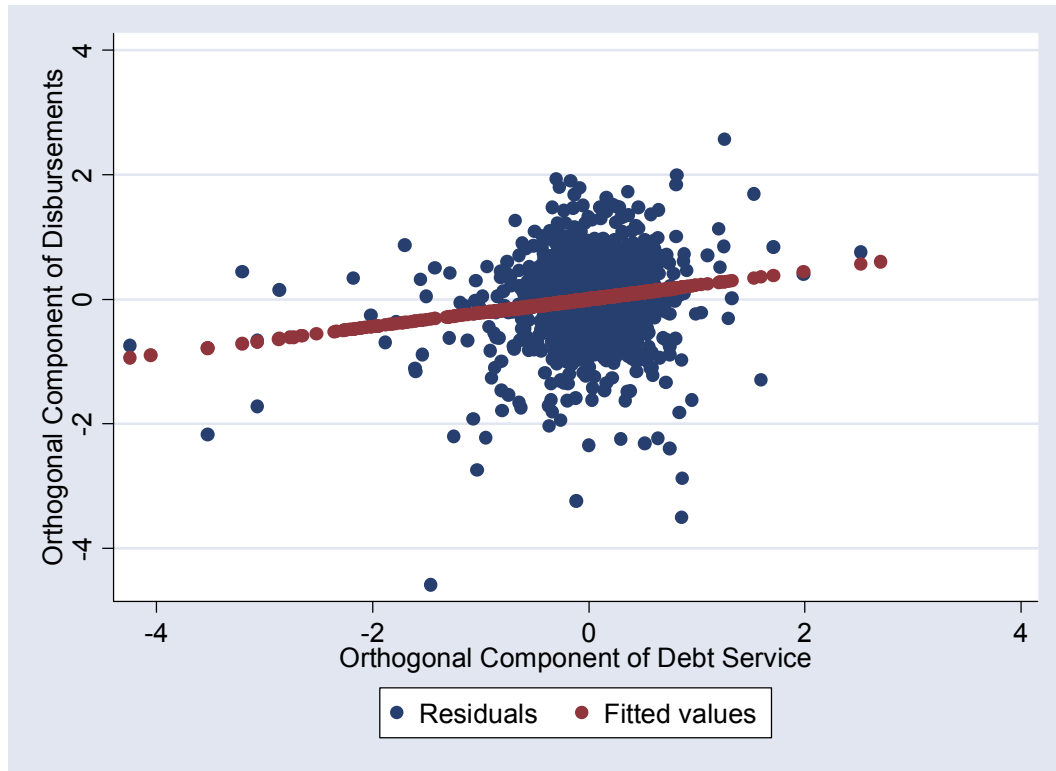


Figure 2: Debt Service and Disbursements Around Non-Accrual Episodes

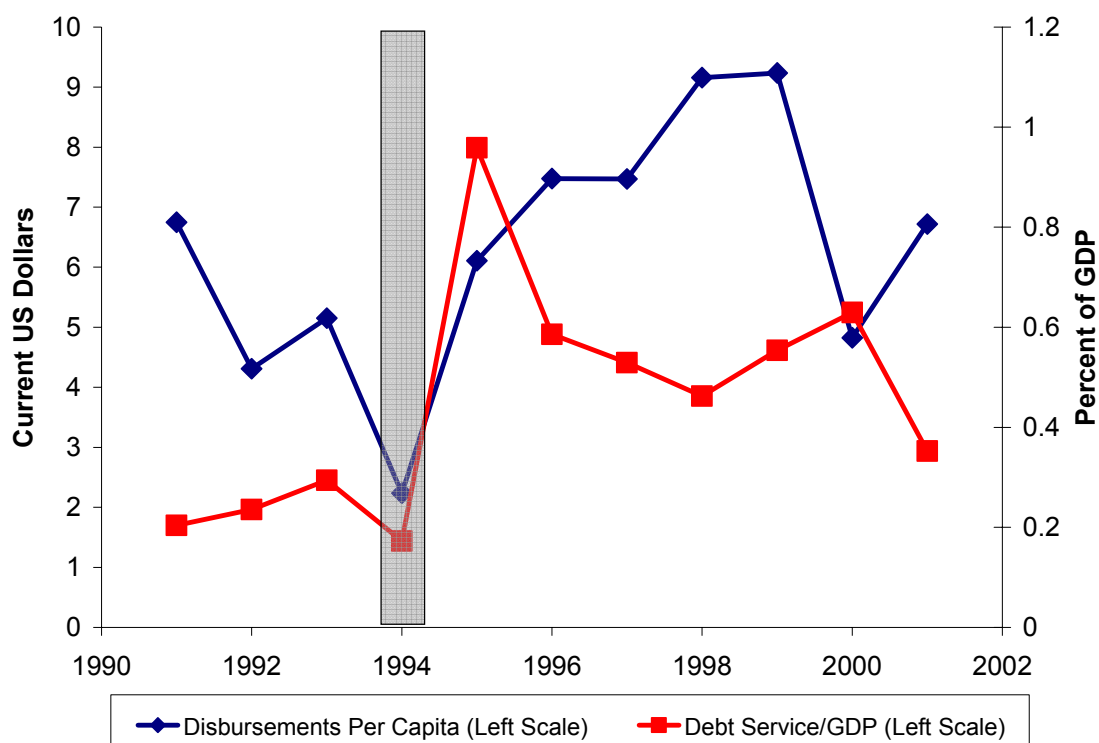


Figure 3: Net Transfers by IDA, By Decile of Debt Service/GDP

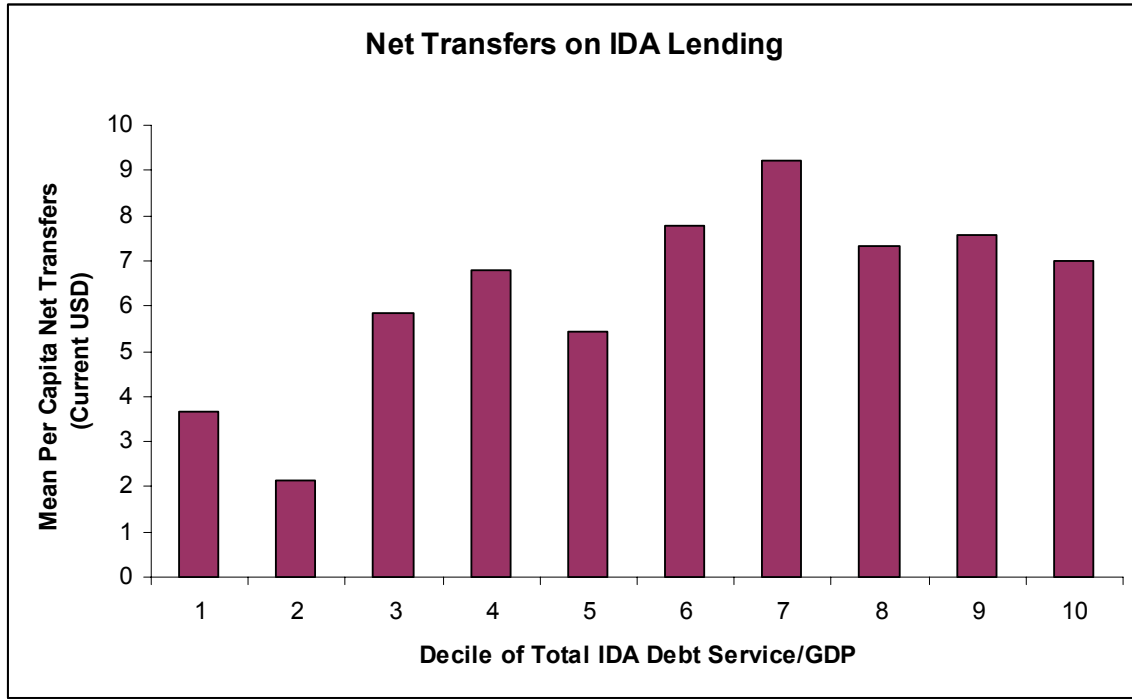


Table 1: IDA Allocation Regressions				
<i>Dependent Variable</i>	(1) log(Disburse- ments/Capita) 1984-2003	(2) log(Commit- ments/Capita) 1984-2003	(3) log(Disburse- ments/Capita) 1984-1993	(5) log(Disburse- ments/Capita) 1984-2003
<i>Time Period</i>				
log(GDP Per Capita)	-0.298*** (0.097)	-0.087 (0.058)	-0.508*** (0.146)	-0.235** (0.110)
log(Population)	-0.315*** (0.046)	-0.456*** (0.026)	-0.369*** (0.056)	-0.278*** (0.050)
log(Policy Performance)	1.149*** (0.192)	0.756*** (0.112)	0.778*** (0.258)	1.469*** (0.259)
Year Dummies	Yes	Yes	Yes	Yes
Country Dummies	No	No	No	No
Number of Observations	1200	909	520	680
Number of Countries	82	82	68	78
R-Squared	0.328	0.498	0.374	0.317
				1.260*** (0.188)
				Yes
				Yes
				1227
				83
				0.585

All regressions are estimated by OLS. Heteroskedasticity-consistent standard errors clustered by country in parentheses. * (**) (***) indicates significance at the 10% (5%) (1%) level.

Table 2: Debt, Debt Service, and IDA Lending
Dependent Variable is log(Disbursements per Capita)

<i>Time Period</i>	(1) 1984- 2003	(2) 1984- 2003	(3) 1984- 2003	(4) 1984- 2003	(5) 1984- 1993	(6) 1994- 2003	(7) 1984- 1993	(8) 1994- 2003
log(GDP Per Capita)	0.180* (0.108)	0.094 (0.115)			0.209 (0.167)	-0.009 (0.117)		
log(Population)	-0.199*** (0.036)	-0.234*** (0.041)			-0.216*** (0.042)	-0.228*** (0.052)		
log(Policy Performance)	1.018*** (0.168)	0.879*** (0.179)	1.250*** (0.188)	1.046*** (0.184)	0.522*** (0.158)	1.199*** (0.258)	0.729*** (0.251)	0.992*** (0.221)
log(IDA Debt Outstanding/GDP)	0.389*** (0.060)		0.125* (0.071)					
log(Total IDA Debt Service/GDP)		0.306*** (0.064)		0.222*** (0.084)	0.559*** (0.087)	0.170*** (0.061)	0.268* (0.153)	0.179*** (0.078)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	No	Yes	Yes	No	No	Yes	Yes
Number of Observations	1170	1137	1172	1137	471	666	471	666
Number of Countries	81	80	81	80	61	76	61	76
R-Squared	0.430	0.411	0.587	0.630	0.579	0.342	0.749	0.664

All regressions are estimated by OLS. Heteroskedasticity-consistent standard errors clustered by country in parentheses. * (**) (***) indicates significance at the 10% (5%) (1%) level.

Table 3: Alternative Explanations							
	Dependent Variable is $\log(\text{Disbursements per Capita})$						
Time Period	(1) 1984- 2003	(2) 1984- 2003	(3) 1984- 2003	(4) 1984- 2003	(5) 1984- 2003	(6) 1984- 2003	(7) 1984- 2003
$\log(\text{GDP Per Capita})$				-0.032 (0.126)		0.091 (0.115)	
$\log(\text{Population})$				-0.374*** (0.072)		-0.234*** (0.041)	
$\log(\text{Policy Performance})$	0.988*** (0.187)	0.911*** (0.175)	0.870*** (0.180)	0.877*** (0.185)	0.976*** (0.175)	0.812*** (0.251)	0.988*** (0.234)
$\log(\text{Total IDA Debt Service/GDP})$	0.211** (0.085)	0.113 (0.079)	0.136 (0.094)	0.413*** (0.085)	0.507*** (0.112)	0.322*** (0.076)	0.236** (0.102)
Interaction with Change in Nonaccrual Status		0.142*** (0.039)					
Interaction with Entry into Non-accrual Status			0.302*** (0.105)				
Interaction with Exit from Non-accrual Status			0.012 (0.060)				
Interaction with Rank Among IDA Debtors				-0.004* (0.002)	-0.008*** (0.002)		
Interaction with Dummy for Good Policy						-0.027 (0.061)	-0.031 (0.071)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	No	Yes	No
Number of Observations	1098	1098	1098	1137	1137	1137	1137
Number of Countries	80	80	80	80	80	80	80
R-Squared	0.631	0.641	0.640	0.426	0.652	0.411	0.630
All regressions are estimated by OLS. Heteroskedasticity-consistent standard errors clustered by country in parentheses. * (**) (***) indicates significance at the 10% (5%) (1%) level.							

Table 4: Is Defensive Lending Done Through Policy Performance Measure?								
	Dependent Variable is IDA Country Performance Rating							
Time Period	(1) 1996-2003	(2) 1996-2003	(3) 1996-2003	(4) 1996-2003	(5) 1996-2003	(6) 1996-2003	(7) 1996-2003	(8) 1996-2003
Rule of Law	1.013*** (0.126)	0.424* (0.245)	1.016*** (0.125)	0.448* (0.246)				
Government Effectiveness					1.406*** (0.090)	1.012*** (0.158)	1.401*** (0.091)	1.008*** (0.161)
log(Total IDA Debt/GDP)	-0.047 (0.054)	-0.140 (0.201)			0.002 (0.036)	0.033 (0.168)		
log(Total IDA Debt Service/GDP)			-0.044 (0.044)	0.013 (0.097)			-0.015 (0.031)	-0.012 (0.080)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	Yes	No	Yes	No	Yes	No	Yes
Number of Observations	324	324	324	324	333	333	333	333
Number of Countries	75	75	75	75	75	75	75	75
R-Squared	0.364	0.709	0.364	0.708	0.598	0.768	0.599	0.768
All regressions are estimated by OLS. Heteroskedasticity-consistent clustered by country standard errors in parentheses. * (**) (***) indicates significance at the 10% (5%) (1%) level.								